The Environmental Future
Emerging Challenges and Opportunities for the EPA

A Report from the National Advisory Council for Environmental Policy and Technology

January 2002

Developing this report

- Balanced interest workgroup of Council members
- Face-to-face meetings, teleconferences and Groupware consensus-building session and futurist consultant/writer
- Workgroup product reviewed by EPA staff and other interested parties and modified by full Council prior to final transmittal to Administrator

Creating an effective foresight process in EPA

Desired attributes

- comprehensive, continuous & institutional

Recommended activities

- **Encourage foresight efforts *championed*** by the Administrator and senior leadership
- Support and **expand EPA's "Futures Network"** through training in foresight methodologies
- **Expand workforce capacity** by promoting / hiring multi-discipline & cross-media experts

Creating an effective foresight process in EPA

- **Incorporate futures analysis** into EPA's strategic planning process - move beyond problem-solving

- **Support work "at the edges,"** by encouraging unconventional and innovative thinking both within current programs and across programs

- **Champion futures analysis at other agencies** and regularly engage outside stakeholders

- **Engage NACEPT** as a forum for futures analysis

Organizational Themes

- World population and demographics
- Natural resources
- Science and technology
- Information management and access
- Economics and commerce
- Politics and social evolution

Population and demographics

- Raise domestic awareness of sustainable development
- Facilitate export of environmentally superior technologies to developing countries
- Elevate EPA's international role in sustainable development networks and education
  ➔ *Establish "Envirocorps" to compliment international aid efforts of Peace Corps*

Natural Resources

Energy

- Expand Energy-Star Program broadly across consumer product sectors
- Establish Green Vehicle Labeling Program

➔ *Partner w/ DoE on the Freedom CAR*

- Encourage total cost accounting for energy technologies for development decision-making
- Spur investment in renewables and efficiency technologies through CAA State Implementation Plans

Natural Resources

Energy

- Promote market-oriented policies and programs to curb greenhouse gas emissions
- Demonstrate methane-to-hydrogen conversion and hydrogen energy technologies at POTWs
- ➔ **Support innovative research on sequestering carbon in energy production**
- Encourage R&D on hydrogen as a primary energy carrier

Natural Resources

Water

➔ Expedite Pretreatment Streamlining Initiative

➔ Integrate water efficiency objectives with current water discharge regulations

➔ ***Develop holistic management approach to water and the environment with other agencies and stakeholders***

- Redouble efforts to include non-point sources in water management programs

- Implement an effective market system to minimize generation of hazardous waste through P2, source reduction and other initiatives

Natural Resources

Biodiversity, Land and Food

- Enhance use of Supplemental Environmental Projects to encourage land conservation and restoration
- Continue to develop partnerships with State DNRs and other land management agencies for wildlife preservation and biodiversity protection
- ➡ ***Develop comprehensive biodiversity indicators as primary indicators of ecological health***
- Expand domestic and international efforts to identify and control invasive species

Natural Resources

Biodiversity, Land and Food

- Sponsor research on the costs and benefits of higher density community development
- Assess ecological and economic impacts of sea level rise from global warming

➡ ***Advocate environmentally advanced agricultural practices***

- Develop national strategy to address public health impacts of antibiotics, hormones and food additives

Natural Resources

Air

- Initiate "Healthy Buildings / Healthy People" indoor air voluntary partnership as follow-up to OAR and OPPTS report

  ➔ ***Develop "total human exposure" approach to air emissions from multiple, diffuse sources***

- Re-establish an advanced automotive technology partnership

- Support R&D for advanced transit systems, including commercial vehicles

- Support research on ultra-clean coal technology

Science and Technology

- "Lead by example" with clear Agency-wide commitment to environmental excellence—start with Strategic Plan

- Move broadly beyond Project XL with simplified regulatory relief to spur performance and innovation

- Marshall sound science in development and defense of environmental standards

- Create investment partnerships for energy efficient technologies

→ *Identify and promote environmentally beneficial developments in biotechnology and nanotechnology*

Information Management/Access

- Expand information role through focused public environmental education
  - ✓ Environmental Indicators Initiative
  - ✓ Enhance ENVIROMAPPER accessibility and user friendliness
  - ✓ Expand community information access, e.g. Windows to the Environment

- Expand EPA's coordination role with regulatory partners and others conducting environmental monitoring

→ ***Invest in and incorporate geospatial technologies into EPA's rulemaking, regulatory and compliance procedures***

Information Management/Access

➔ ***Monitor development and promote use of new sensing technologies in environmental monitoring***

- Perfect integrated monitoring technologies that allow "total human exposure" assessments to multi-pollutant and multi-media exposures

Economics and Commerce

- Expand Environmental Technology Verification to identify emerging, commercially-ready technologies

  ➔ ***Support disaster preparedness by state, local and private sector stakeholders by delivering vulnerability assessment tools and resources***

- Expand product stewardship and "Design for the Environment" efforts toward environmentally responsible products/services

Economics and Commerce

- Implement a global alert system to identify high-environmental-risk manufacturing processes to minimize migration to vulnerable nations and communities

- Integrate cumulative risk assessment into permitting processes to foster environmental justice

➔ *Support development of international review and verification of environmental performance*

Economics and Commerce

- Provide international assistance to prevent ecological and economic development failures

➜ *Encourage conversion from a "goods" economy to a "service providers" economy through informational outreach*

Politics and Social Evolution

- Enhance Agency capacity to evaluate tribal, state, and local environmental performance

➜ ***Enhance regional, tribal and state capacities to carry-out delegated program functions, including delivery of effective compliance assistance***

- Promptly reinstate federal oversight for distressed or failing state programs

Politics and Social Evolution

➔ ***Engage NGOs and non-traditional stakeholders in community-based approaches to environmental protection***

- Support the Global Reporting Initiative pilot projects underway at major multi-national corporations

- Support ongoing US participation in global environmental initiatives and conventions

Next Steps

- Engage senior EPA managers to refine and prioritize NACEPT recommendations
- NACEPT "Futures Forum" in late spring
  - ✓ Discussions with senior EPA managers, representatives of other federal agencies and departments and outside "experts" on addressing NACEPT recommendations
  - ✓ Identify further opportunities not addressed by NACEPT
- Opportunities for NACEPT
  - ✓ Administrator's requests
  - ✓ Environmental technologies
  - ✓ Assist EPA in defining its role in the war on terrorism